

AUG 27 2007

Application No. 10/537,770  
Reply to Office Action of January 8, 2007

Docket No.: 41557-218983

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A gas sensor comprising a body, ~~the body comprising: on which is mounted an optical source and detector means sensitive to light from the source, the body further comprising~~

a channel having a first end and a second end and arranged to admit a gas, the channel comprising an elongated groove having reflective surfaces defining a folded optical path for light from the source;

an optical source located at the first end of the channel;

a first detector, located at the second end of the channel, to detect light from the source; and

a second detector to detect light from the source that has been tapped off partway along the channel.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) A sensor as claimed in claim ~~[[3]]~~ 1, ~~wherein the second detector is connected to the channel by an optical pathway in which the detector means further comprises a second detector, the sensor further comprising means arranged to redirect a portion of light from a predetermined region of the channel to the second detector.~~

5. (Original) A sensor as claimed in claim 1, in which a portion of the elongated groove forms a spiral optical path.

6. (Original) A sensor as claimed in claim 1, in which a portion of the groove forms a serpentine optical path.

7. (Original) A sensor as claimed in claim 1, in which a portion of the groove forms a helical optical path.
8. (Original) A sensor as claimed in claim 7, in which the body is cylindrical and the helical optical path extends around the exterior of the body.
9. (Original) A sensor as claimed in claim 8, in which the cylinder includes a hollow region and a portion of the groove comprises a helical optical path around the interior of the hollow region.
10. (Original) A sensor as claimed in claim 7, in which the body includes a hollow cylindrical region and a portion of the groove comprises a helical optical path around the interior of the hollow region.
11. (Original) A sensor as claimed in claim 1, in which the body comprises a base arranged to accommodate the source and detector(s) and at least one wall extending transversely from the plane of the base.
12. (Original) A sensor as claimed in claim 11, in which the walls are arranged substantially to bisect each other transversely.
13. (Original) A sensor as claimed in claim 11, in which a portion of the elongated groove is located on the at least one wall and a portion of the groove is located on the base.
14. (Currently Amended) A sensor as claimed in claim 1, further comprising a cover for the channel including a gas admittance ~~means~~ member.
15. (Original) A sensor as claimed in claim 14, in which the cover has an interior surface facing the channel, which surface is arranged to reflect radiation.

16. (Original) A sensor as claimed in claim 14, in which the gas admittance means includes sintered material.
17. (Original) A sensor as claimed in claim 14, in which the gas admittance means includes a particulate filter.
18. (Original) A sensor as claimed in claim 1 wherein the optical source is an infrared source.
19. (Cancelled)